Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for accommodating different drum loads in an imaging device, the method comprising ~~steps of~~:

a) applying a drive stimulus to ~~the~~ a drum load;

b) monitoring ~~the~~ a response of the drum load to the drive stimulus;

c) determining from the response a new value for at least one control parameter, the at least one control parameter comprising a parameter of a relationship which relates an output of a drum controller for driving the drum load to a state of rotation of the drum load; and

d) updating the at least one control parameter in accordance with the new value.

2. (Currently Amended) A method ~~according to claim 1,~~ for accommodating different drum loads in an imaging device, the method comprising:

applying a drive stimulus to a drum load;

monitoring a response of the drum load to the drive stimulus;

determining a new value for at least one control parameter for driving the drum load; and

updating the control parameter in accordance with the new value;

wherein the drive stimulus is a pre-determined drive stimulus.

3. (Original) A method according to claim 2, wherein the pre-determined drive stimulus is a constant torque.

4. (Original) A method according to claim 2, wherein the pre-determined drive stimulus is a varying torque.

5. (Original) A method according to claim 1, wherein steps (b) to (d) are performed under closed loop feedback control.

6. (Original) A method according to claim 1, wherein steps (a) to (d) are performed under open loop feedback control.

7. (Original) A method according to claim 6, wherein steps (b) to (d) are iteratively repeated.

8. (Currently Amended) A method according to claim 7 ~~wherein after updating the control parameter in accordance with the new value, the iterative repetition of steps (b) to (d) is discontinued~~ comprising, after iteratively repeating steps (b) to (d) a plurality of times, discontinuing the iterative repetition of steps (b) to (d).

9. (Currently Amended) A method ~~according to claim 1,~~ for accommodating different drum loads in an imaging device, the method comprising:

applying a drive stimulus to a drum load;

monitoring a response of the drum load to the drive stimulus;

determining a new value for at least one control parameter for driving the drum load; and

updating the control parameter in accordance with the new value;

wherein the monitoring the response of the drum load to the stimulus is performed by optical means.

10. (Currently Amended) A method ~~according to claim 1,~~ for accommodating different drum loads in an imaging device, the method comprising:

applying a drive stimulus to a drum load;

monitoring a response of the drum load to the drive stimulus;

determining a new value for at least one control parameter for driving the drum load; and,

updating the control parameter in accordance with the new value;

wherein the parameter is effective drum inertia.

11. (Currently Amended) A method according to claim 10, wherein the effective drum inertia is calculated according to the formula:

$$J=T/\alpha;$$

where T is the value of a constant torque stimulus applied to the drum and α is the rotational acceleration of the drum load, the rotational acceleration calculated from the monitored response of the drum load to the drive stimulus.

12. (Currently Amended) A system for driving a drum load, comprising:

a drum drive for driving ~~the~~ a drum, the drum having an associated drum load;

an encoder for sensing ~~the~~ resulting rotation of the drum; and

a controller operably connected to the drum drive to provide control signals thereto, the control signals derived by the controller in response to rotational information received from the encoder, the controller

having a drive parameter estimator for determining one or more drive parameters suitable ~~drive conditions~~ for the drum load, the one or more drive parameters comprising a parameter of a relationship which relates the control signals to a state or rotation of the drum.

13. (Original) A system for driving a drum load according to claim 12, wherein the drive parameter estimator comprises instructions stored in computer readable memory.

14. (Original) A system for driving a drum load according to claim 12, wherein the drive parameter estimator comprises an adaptive controller.

15. (Currently Amended) A system for driving a drum load, ~~according to claim 12,~~ the system comprising:

a drum drive for driving a drum, the drum having an associated drum load;

an encoder for sensing resulting rotation of the drum; and

a controller operably connected to the drum drive to provide control signals thereto, the control signals derived by the controller in response to rotational information received from the encoder, the controller having a drive parameter estimator for determining suitable drive conditions for the drum load;

wherein the ~~drum~~ controller is adapted to switch between an open loop and a closed loop control mode, and the drive parameter estimator determines suitable drive conditions for the drum load in the open loop mode.

16. (Currently Amended) A system for driving a drum load, ~~according to claim 12,~~ the system comprising:

a drum drive for driving a drum, the drum having an associated drum load;

an encoder for sensing resulting rotation of the drum; and

a controller operably connected to the drum drive to provide control signals thereto, the control signals derived by the controller in response to rotational information received from the encoder, the controller having a drive parameter estimator for determining suitable drive conditions for the drum load;

wherein the ~~drum~~ controller is adapted to switch between an open loop and a closed loop control mode, and the drive parameter estimator determines suitable drive conditions for the drum load in the closed loop mode.

17. (New) A system according to claim 12 wherein the controller is adapted to switch between an open loop control mode and a closed loop control mode.

18. (New) A system according to claim 12 comprising a memory accessible to the controller wherein the drive parameters determined by the drive parameter estimator are stored in the memory.

19. (New) A system according to claim 12 wherein the relationship comprises a model for estimating the state of rotation of the drum in response to given control signals.

20. (New) A system according to claim 12 wherein the one or more drive parameters comprise at least one parameter of a model for estimating the state of rotation of the drum in response to a given torgue applied by the drum drive.

21. (New) A system according to claim 20 wherein the one or more drive parameters comprise an effective drum inertia.

22. (New) A method according to claim 1 comprising determining values for a plurality of control parameters.

23. (New) A method according to claim 1 wherein the at least one control parameter comprises one or more of: an effective inertia, a damping coefficient, and a torque constant.

24. (New) A method according to claim 1 comprising storing state variables representing the response of the drum load to the stimulus and performing step c) after removing the stimulus.

25. (New) A method according to claim 1 comprising performing steps a) through d) in response to determining that the drum load has been changed.

26. (New) A method according to claim 1 wherein the relationship comprises a model for estimating the state of rotation of the drum load in response to the output of the drum controller.

27. (New) A method according to claim 1 wherein the at least one control parameter comprises at least one parameter of a model for estimating the state of rotation of the drum load in response to a given torque.

28. (New) A method according to claim 1 wherein the at least one control parameter comprises an effective drum inertia.